Class: **S. Y. Civil**	Semester-**IV**
Course Code:**CE2102**	Course Name: **Human Values and Professional Ethics**

L	T	P	Credits
3	--	--	3

Course Outcomes:
After completing the course, the student should be able to: -

1. Practice the moral value in engineering profession.
2. Resolve the moral issues in the profession.
3. Justify the moral judgment concerning the profession.

COURSE CONTENT

Unit No.	Details of Content	Hrs.
1	**Human Values:** Moral values, ethics, integrity, service learning virtues, respect for others, living peacefully, caring and sharing, honesty, courage, value time, co-operation, commitment, empathy, challenge in the work place, spirituality.	06
2	**Engineering Ethics** Sense of engineering ethics, variety of moral issues, moral dilemma, moral autonomy & development, consensus & controversy, profession & professional role models, responsibility, ethical theories, self interest, customs, religion.	06
3	**Engineering as Social Experimentation:** Engineering & experimentation, engineers as responsible experiments, codes of ethics, industrial standards, balanced outlook on law.	06
4	**Safety, Responsibility & Rights** Safety & risk, risk analysis, assessment of safety & risk, safe exit, risk benefit analysis, safety lessons, loyalty, confidentiality, conflict of interests, occupational crimes, whistle blowing.	06
5	**Global Issues** Globalization, multinational corporations, computer ethics, weapon development, moral leadership, ethics & codes of business conduct in MNC, corporate social responsibility, ethical audit.	06
6	**Case Studies** 6 to 8 case studies based on professional ethics	06

References:

1. "A textbook on professional ethics & human values" by R. S. Naagarazan, New Age International Publishers, 2nd Edition.
2. "Professional ethics & human values" by M. Govindarajan, S. Natarajan, V. S. Senthikumar, PHI learning private ltd. Delhi, Third Printing

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Class : S. Y. B. Tech. **Semester:** III

Course Code	Course	Teaching Scheme				Evaluation Scheme					
		L	T	P	Cr	Scheme	Theory (Marks)			Practical (Marks)	
							Max	Min. for passing%		Max.	Min. for passing %
CE2012	Building Planning and Design	3	-	-	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
CE2032	Engineering Mechanics	3	-	-	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
CE2052	Strength of Material	2	-	-	2	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
SH2052	Engineering Mathematics III	3	1	-	4	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
CE2072	Surveying	2	-	-	2	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
SH2172	Environmental Science	1*	-	-	1	ISE	50	40	40	-	-
						ESE	50	40		-	-
CE2092	Building Planning and Design lab	-	-	4	2	ISE	-	-	-	50	50
						ESE	-	-	-	50	50
CE2112	Surveying Lab	-	-	2	1	ISE	-	-	--	50	50
						ESE	-	-		50	50
CE2132	Strength of Material lab	-	-	2	1	ISE	-	-	-	100	50
CE2152	Comprehensive Exam I	-	-	-	1	ESE	-	-	-	100	50
CE2172	Engineering Mechanics Lab	-	-	2	1	ISE	-	-	-	100	50
SH2602	Environment Project	-	-	2	1	ISE				100	50
	Open Elective –II Choice Based Soft Skill Program-I	-	-	2	1	ISE	-	-	-	100	50
	TOTAL	**14**	**01**	**14**	**23**	-	-	-	-	-	-

Total Contact Hours/week : 29
Total Credits : 23

Notes:
* One extra lecture to be allotted to Environment Science in time table.
**Internship will be carried out after completion of semester III for 4 Weeks. The evaluation will be done at the end of semester IV.

Courses for Comprehensive Exam: Engg. Mathematics, Engg. Mechanics, Strength of Materials, Advanced Surveying

ISE = In Semester Evaluation, UT-1 = Unit Test-1, UT-2 = Unit Test- 2 & ESE = End Semester Examination

Open Elective –II

List of Choice Based Soft Skill Program-I

Sr. No.	Subject Name		Course Code
1.	Choice Based Soft Skill Program-I & II	Personal Effectiveness & Body Language	SH2592
2.		Interpersonal Skills (Work life Balance)	SH2612
3.		Leadership & Public Speaking	SH2632
4.		Innovation Tools and Methods for Entrepreneurs	SH2692
5.		German Language – Basic Level	SH2732
6.		Japanese Language – Basic Level	SH2712

Note:

1. A student has to complete any two courses out of six choices offered under Choice Based Soft Skills Programme. A course in each semester will be allocated without any repetition.

2. The students who have completed 'German Language Lab' or 'Japanese Language Lab' in F.Y. B. Tech should not give their choice for 'German Language – Basic Level' and 'Japanese Language – Basic Level'. Such students may give their choices for 'German Language – Advanced Level' and 'Japanese Language – Advanced Level' (batch size 40 each) in the S.Y. B. Tech Sem-IV only.

3. The students who will select and will successfully complete 'German Language – Basic Level' and 'Japanese Language – Basic Level' in S.Y. B. Tech Sem-III will by default (mandatorily) appear for Advance Levels of said courses in Semester-IV.

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Class : S. Y. B. Tech. **Semester:** IV

Course Code	Course	Teaching Scheme				Evaluation Scheme				
		L	T	P	Cr	Scheme	Theory (Marks) Max.	Min. for passing%	Practical (Marks) Max.	Min. for passing %
CE2022	Engineering Geology	2	-	-	2	ISE	20	40	-	-
						UT1	15		-	-
						UT2	15		-	-
						ESE	50	40	-	-
CE2042	Concrete Technology	3	-	-	3	ISE	20	40	-	-
						UT1	15		-	-
						UT2	15		-	-
						ESE	50	40	-	-
CE2062	Fluid Mechanics	3	-	-	3	ISE	20	40	-	-
						UT1	15		-	-
						UT2	15		-	-
						ESE	50	40	-	-
CE2082	Mechanics of Structures	3	-	-	3	ISE	20	40	-	-
						UT1	15		-	-
						UT2	15		-	-
						ESE	50	40	-	-
CE2102	Human Values and Professional Ethics	2	-	-	2	ISE	20	40	-	-
						UT1	15		-	-
						UT2	15		-	-
						ESE	50	40	-	-
CE2122	Applications of Programming Language in Civil Engineering	-	-	2	1	ISE	-	-	100	50
CE2142	Engineering Geology Lab	-	-	2	1	ISE	-	-	100	50
CE2162	Fluid mechanics Lab	-	-	2	1	ISE	-	-	100	50
CE2182	Concrete Technology Lab	-	-	2	1	ISE	-	-	100	50
CE2202	Comprehensive Exam II	-	-	-	1	ESE	-	-	100	50
	Open Elective –III Choice Based Soft Skill Program-II	-	-	2	1	ISE	-	-	100	50
CE2222	Internship	-	-	-	2	ISE	-	-	100	50
	TOTAL	**13**	**0**	**10**	**21**	-	-	-	-	-

Total Contact Hours/week : **23**
Total Credits : **21**

Courses for Comprehensive Exam: Mechanics of Structures, Fluid Mechanics, Concrete Technology

ISE = In Semester Evaluation, UT-1 = Unit Test-1, UT-2 = Unit Test-2 & ESE = End Semester Examination

Open Elective –III

List of Choice Based Soft Skill Program-I & II

Sr. No.	Subject Name		Course Code
1.	Choice Based Soft Skill Program-I & II	Personal Effectiveness & Body Language	SH2592
2.		Interpersonal Skills (Work life Balance)	SH2612
3.		Leadership & Public Speaking	SH2632
4.		Innovation Tools and Methods for Entrepreneurs	SH2692
5.		German Language – Basic Level	SH2732
6.		Japanese Language – Basic Level	SH2712

Note:

1. A student has to complete any two courses out of six choices offered under Choice Based Soft Skills Programme. A course in each semester will be allocated without any repetition.

2. The students who have completed 'German Language Lab' or 'Japanese Language Lab' in F.Y. B. Tech should not give their choice for 'German Language – Basic Level' and 'Japanese Language – Basic Level'. Such students may give their choices for 'German Language – Advanced Level' and 'Japanese Language – Advanced Level' (batch size 40 each) in the S.Y. B. Tech Sem-IV only.

3. The students who will select and will successfully complete 'German Language – Basic Level' and 'Japanese Language – Basic Level' in S.Y. B. Tech Sem-III will by default (mandatorily) appear for Advance Levels of said courses in Semester-IV.

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Class : T. Y. B. Tech. **Semester:** V

Course Code	Course	Teaching Scheme				Evaluation Scheme					
		L	T	P	Cr	Scheme	Theory (Marks)			Practical (Marks)	
							Max.	Min. for passing%		Max.	Min. for passing %
CE3012	Design of Steel Structures	3	-	-	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
CE3032	Geotechnical Engineering	3	-	-	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
CE3052	Irrigation and Hydraulic Structures	3	-	-	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
CE3072	Environmental Engineering	3	-	-	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
CE3092	Transportation Engineering	3	-	-	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
	Programme Elective - I	3	-	-	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
CE3112	Geotechnical Engineering lab	-	-	2	1	ISE	-	-	-	50	50
						ESE	-	-	-	50	50
CE3132	Environmental Engineering lab	-	-	2	1	ISE	-	-	-	50	50
						ESE	-	-	-	50	50
CE3152	Transportation Engineering lab	-	-	2	1	ISE	-	-	-	50	50
						ESE	-	-	-	50	50
SH3032	Aptitude Training -I	2*	-	-	2	ISE	20	40	40	-	-
						UT1	15				
						UT2	15				
						ESE	50	40			
CE3172	Comprehensive Exam III	-	-	-	1	ESE	-	-	-	100	50
SH301	Indian Constitution	2	-	-	Audit	ISE	100	40	-	-	-
	TOTAL	**22**	**00**	**06**	**24**	-	-	-	-	-	-

Total Contact Hours/week : 28
Total Credits : 24

Note:
* One extra lecture to be allotted to Environment Science in time table.

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Courses for Comprehensive Exam III: Design of Steel Structures, Geotechnical Engineering, Environmental Engineering, Transportation Engineering, Irrigation and Hydraulic Structures

ISE = In Semester Evaluation, UT-1 = Unit Test-1, UT-2 = Unit Test-2 & ESE = End Semester Examination

List of Program Elective-PE I

Sr. No.	Course Code	Domain	Course
1	CE3192	Structural Engineering	Structural Analysis
2	CE3212		Composite Materials
3	CE3232	Construction Management	Construction Safety and Quality Management
4	CE3252		Advanced Construction Techniques
5	CE3272	General Civil Engineering (Environmental, Geotechnical, Transportation etc.)	Instrumental Monitoring of Environment and Modeling
6	CE3292		Tunnel Docks and Harbor Engineering
7	CE3312		Urban Transportation Systems

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Class : T. Y. B. Tech. **Semester:** VI

Course Code	Course	Teaching Scheme				Scheme	Evaluation Scheme				
							Theory (Marks)			Practical (Marks)	
		L	T	P	Cr		Max.	Min. for passing%		Max.	Min. for passing %
CE 3022	Theory of Structures	3	-	-	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
CE 3042	Estimation & Contracts	2	-	-	2	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
CE 3062	Design of Reinforced Concrete Structures	4	-	-	4	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
	Program Elective –II	3	-	-	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
	Program Elective –III	3	-	-	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
	Open Elective -IV	3	-	-	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
SH 302	Biology for Engineers	3	-	-	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
CE 3082	Estimation & Contracts Laboratory	-	-	4	2	ISE	-	-		50	50
						ESE	-	-		50	50
CE 3102	Design of Steel Structures Laboratory	-	-	2	1	ISE	-	-		50	50
						ESE	-	-		50	50
CE 3122	Comprehensive Exam-IV	-	-	2	1	ESE	-	-		100	50
CE 3482	Capstone Project phase-I	-	-	2	2	ISE	---	---		100	50
SH3042	Aptitude Training II	2*	-	-	2	ISE	20	40	40	-	-
						UT1	15				
						UT2	15				
						ESE	50	40			
	TOTAL	**23**	**00**	**10**	**29**	-	-	-	-	-	-

Total Contact Hours/week : 33
Total Credits : 29

Courses for Technical Aptitude-IV: Theory of Structures, Estimation & Costing, Construction Management

Note:
*One extra lecture will be allotted in the time table.

ISE = In Semester Evaluation, UT-1 = Unit Test-1, UT-2 = Unit Test-2 &ESE = End Semester Examination

List of Program Elective PE– II

Sr. No.	Course Code	Domain	Course
1	CE 3162	Structural Engineering	Design of Industrial Structures
2	CE 3182		Repair and Rehabilitation of Structures
3	CE 3202	Construction Management	Construction Economics and Finance
4	CE 3222		Disaster Preparedness and Planning
5	CE 3242	General Civil Engineering (Environmental, Geotechnical, Transportation etc.)	Air Quality Monitoring and Modeling
7	CE 3262		Railway and Airport Engineering

List of Program Elective PE– III

Sr. No.	Course Code	Discipline	Course
1	CE 3302	Structural Engineering	Design of Bridges
2	CE 3322		Design of Earthquake Resistant Structures
3	CE 3342	Construction Management	Advanced Construction Equipment
4	CE 3382	General Civil Engineering (Environmental, Geotechnical, Transportation etc.)	Environmental Management System
5	CE 3402		Geographical Information System (GIS)
6	CE 3422		Foundation Engineering
7	CE 344		Intelligent Transport System

Open Elective-IV

Sr. No.	Branch	Course Code	Open Elective-IV Courses
1	Automobile	OE3022	Reliability Engineering
2	Automobile	OE3042	Renewable Energy Sources
3	Civil	OE3062	Environmental Impact Assessment
4	Civil	OE3082	Material Management.
5	Computer	OE3102	Network Administration
6	Computer	OE3122	Information Technology Foundation Program
7	E&TC	OE3142	Mechatronics
8	Electrical	OE3162	Electrical Materials
9	Electrical	OE318	Industrial Drives
10	CS&IT	OE320	Artificial Intelligence
11	CS&IT	OE322	Cyber Forensics
12	MBA	OE3242	Marketing for Engineers
13	Mechanical	OE3262	Aircraft Systems
14	Mechanical	OE3282	Supply Chain Management
15	Mechanical	OE330	New Product Design and Development
16	Mechanical	OE3322	Entrepreneurship Development
17	Mechanical	OE334	Research Methodology

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Class : Final Year. B. Tech. **Semester:** VII

Course Code	Course	Teaching Scheme				Exam	Evaluation Scheme				
							Theory (Marks)			Practical (Marks)	
		L	T	P	Cr		Max.	Min. for passing%		Max.	Min. for passing %
CE 4632	Construction Management	3	-	-	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
CE 4032	Construction Equipment and Methods	3	-	-	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
	Program Elective -IV	3	-	-	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
	Program Elective -V	3	-	-	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
CE 4612	Site Experience	-	-	-	2	ISE	-	-	-	100	50
	Program Elective -IV Lab	-	-	2	1	ISE	-	-	-	50	50
						ESE	-	-	-	50	50
CE 4052	Design of Concrete Structures Laboratory	-	-	2	1	ISE	-	-	-	50	50
						ESE	-	-	-	50	50
CE 4372	Capstone Project Phase-II	-	-	4	4	ISE	-	-	-	100	50
						ESE	-	-	-	100	50
CE 4072	Employment Enhancement Skills (Software in Civil Engg.)	-	-	2	1	ISE	-	-	-	100	50
	TOTAL	**12**	**00**	**10**	**21**	-	-	-	-	-	-

Total Contact Hours/week : 22
Total Credits : 21

ISE = In Semester Evaluation, UT-1 = Unit Test-1, UT-2 = Unit Test-2 & ESE = End Semester Examination

List of Program Elective (PE) – IV

Sr. No.	Course Code	Discipline	Course
1	CE 4092	Structural Engineering	Advanced Structural Analysis
2	CE 4112		Finite Element Analysis
3	CE 4132	Construction Management	Project Management
4	CE 4152	General Civil Engineering (Environmental, Geotechnical, Transportation etc.)	Rock Mechanics
5	CE 4172		Industrial Waste Management
6	CE 4192		Pavement Analysis and Design

List of Program Elective (PE) - IV Laboratory

Sr. No.	Course Code	Discipline	Course
1	CE 4212	Structural Engineering	Advanced Structural Analysis Laboratory
2	CE 4232		Finite Element Analysis Laboratory
4	CE 4652	Construction Management	Project Management Laboratory
5	CE 4272	General Civil Engineering (Environmental, Geotechnical, Transportation etc.)	Rock Mechanics Laboratory
6	CE 4672		Industrial Waste Management Laboratory
7	CE 4312		Pavement Analysis and Design Laboratory

List of Program Elective (PE)–V

Sr. No.	Course Code	Domain	Course
1	CE 4392	Structural Engineering	Advanced Structural Design
2	CE 4412		Pre-stressed Concrete structures
3	CE 4432		Matrix Method of Structural Analysis
4	CE 4452	Construction Management	Construction Resource Planning and Management
5	CE 4472		Total Quality Management
6	CE 4492	General Civil Engineering (Environmental, Geotechnical, Transportation etc.)	Air Pollution and Control
7	CE 4512		Fundamentals of Urban and Regional Planning
8	CE 4532		Solid and Hazardous Waste management
9	CE 4552		Photogrammetry Surveying
10	CE 4572		Geo-informatics for Engineering
11	CE 4592		Docks, Harbors and Airport Engineering

Open Elective-V

Sr. No.	Branch	Course Code	Open Elective-IV Courses
1	Automobile	OE3022	Reliability Engineering
2	Automobile	OE3042	Renewable Energy Sources
3	Civil	OE3062	Environmental Impact Assessment
4	Civil	OE3082	Material Management.
5	Computer	OE3102	Network Administration
6	Computer	OE3122	Information Technology Foundation Program
7	E&TC	OE3142	*Mechatronics*
8	Electrical	OE3162	Electrical Materials
9	Electrical	OE318	Industrial Drives
10	CS&IT	OE320	Artificial Intelligence
11	CS&IT	OE322	Cyber Forensics
12	MBA	OE3242	Marketing for Engineers
13	Mechanical	OE3262	Aircraft Systems
14	Mechanical	OE3282	Supply Chain Management
15	Mechanical	OE330	New Product Design and Development
16	Mechanical	OE3322	Entrepreneurship Development
17	Mechanical	OE334	Research Methodology

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Track I: Industry Internship & Projects (IIP)

Class: Final Year B. Tech **Semester:** VIII

Course Code	Course	Teaching Scheme				Evaluation Scheme					
		L	T	P	Credits	Scheme	Theory (Marks)			Practical (Marks)	
							Max.	Min. for passing%		Max.	Min. for passing%
OE438	Finance for Engineers (Online Course)	2	-	-	2	ISE	25	40	40	---	---
						ES	75	40		---	---
OE436	Engineering Management & Economics (Online Course)	2	-	-	2	ISE	25	40	40	---	---
						ES E	75	40		---	---
IP4022	Internship & Project	-	-	-	8	ISE	---	----		50	50
						ES E	---	---		50	50
	TOTAL	**04**	**-**	**-**	**12**						

ISE = In Semester Evaluation, ESE = End Semester Examination

Total Contact Hours/week : 04
Total Credits : 12

Notes:

1. Weekly Contact hours are not mentioned for IP4022 course, as student is expected to be in industry regularly for 20 weeks. However, student needs to report to Institute mentors as and when required.

2. For online course, lecture videos of each unit will be made available through college platform to the students. For each unit there will be separate assignment. Students need to submit all assignments within specified time.

Weightage: 25% weightage for unit wise assignments + 75% weightage for final exam. Final exam will be held at college campus.

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Track II: Undergraduate Research Experience (URE)

Class: Final Year B. Tech **Semester:** VIII

Course Code	Course	Teaching Scheme				Evaluation Scheme					
		L	T	P	Credits	Scheme	Theory (Marks)			Practical (Marks)	
							Max.	Min. for passing (%)		Max.	Min. for passing (%)
OE438	Finance for Engineers (Online Course)	2	-	-	2	ISE	25	40	40	---	---
						ESE	75	40		---	---
OE436	Engineering Management & Economics (Online Course)	2	-	-	2	ISE	25	40	40	---	---
						ESE	75	40		---	---
RE4042	Research Project	-	-	8	8	ISE	---	----		50	50
						ESE	---	---		50	50
	TOTAL	**04**	**-**	**08**	**12**						

ISE = In Semester Evaluation, ESE = End Semester Examination

Total Contact Hours/week : 12
Total Credits : 12

Note:
For online course, lecture videos of each unit will be made available through college platform to the students. For each unit there will be separate assignment. Students need to submit all assignments within specified time.

Weightage: 25% weightage for unit wise assignments + 75% weightage for final exam. Final exam will be held at college campus.

Track III: Entrepreneurship Development (ED)

Class: Final Year B. Tech **Semester:** VIII

Sr.No	Course Code	Course	Teaching Scheme			Credits	Evaluation Scheme					
			L	T	P		Scheme	Theory (Marks)			Practical (Marks)	
								Max	Min. for passing%		Max	Min. for passing%
1	**ED4102**	Project Management	2*	-	-	2	ISE	20	40	40		
							UT-1	15				
							UT-2	15				
							ESE	50	40			
2	**ED4042**	Commercial Aspects of the Project	2*	-	-	2	ISE	20	40	40		
							UT-1	15				
							UT-2	15				
							ESE	50	40			
3	**ED4062**	Entrepreneurship Development Program (EDP)	-	-	-	1	ISE				100	50
4	**ED4082**	Entrepreneurship Development Project	-	-	7	7	ISE				50	50
							ESE				50	
Total			**4**	**-**	**7**	**12**						

ISE = In Semester Evaluation, UT-1 = Unit Test-1, UT-2 = Unit Test-2 ESE = End Semester Examination

Total Contact Hours/week : 11
Total Credits : 12

Note:
1] * One extra lecture to be allotted to Project Management and Commercial Aspects of the Project course in time table.

Rajarambapu Institute of Technology Rajaramnagar Autonomous 415 414 Dist. Sangli

Class:- **S Y B Tech (Mech.)**	Semester-**III**
Course Code : **SH2011**	Course Name : **Environmental Science**

L	T	P	Credits
1	--	--	1

Course Description:

The syllabus of Environmental Science provides an integrated, quantitative and interdisciplinary approach to the study of environmental systems. The students of Engineering undergoing this course would develop a better understanding of human relationships, perceptions and policies towards the environment and focus on design and technology for improving environmental quality. Their exposure to subjects like understanding of earth processes, evaluating alternative energy systems, pollution control and mitigation, natural resource management and the effects of global climate change, will help the students to bring a systems approach to the analysis of environmental problems.

Course Learning Outcomes:

After successful completion of the course, students will be able to,

1. Interpret impacts of human activities on natural resources and its control measures.
2. Apply ecological knowledge to solve environmental problems.
3. Select the appropriate technology to control environmental pollution.
4. Plan waste management and disaster management practices.
5. Justify methods to assess impacts of developmental activities on environment.
6. Analyze environmental change and its social impacts.

Course Content

Unit No.	Description	Hrs
1.	**Natural Resources:** Renewable and Non-renewable resources, Forest resources, water resources, Mineral resources, food resources, Energy resources, alternative energy resources Land resources, Role of individual in conservation of natural resources, Equitable use of resources for Sustainable life styles.	02
2.	**Ecology and Environment:** Definition, Principles and Scope of ecology, Ecosystem: Structure and Functions, biotic and abiotic components, energy flows, food chains, food web, ecological pyramids, Biodiversity, types of biodiversity, conservation of biodiversity	02
3.	**Environmental Pollution and Control Measures:** Environmental Pollution, types of pollution, Air pollution, Water Pollution, Noise Pollution, Soil Pollution, Marine Pollution, Radioactive	02

	Pollution, Thermal Pollution (Causes, sources and effects, abatement methods), Pollution Case studies-Bhopal Gas Tragedy, Chernobyl Accident: A nuclear Disaster, Ganga Water Pollution.	
4.	**Solid Waste, Hazardous Waste and Disaster Management:** Solid Waste management, Urban & industrial Waste Management,(Causes, sources, effects & control measures), Hazardous waste management, Plastic waste management, E-waste management, Waste minimization technology, Disaster management. Disaster management and risk analysis: Flood, Earthquakes, Cyclones, Landslides, Draught, Tsunami etc.	**02**
5.	**Environmental Management:** Environmental impact assessment, Impact Assessment Methodologies, Environmental impact statement and environmental management plan, Environmental audit, Cost-benefit analysis, Role of Central Pollution Control Board (CPCB),State Pollution Control Board, Role of NGO's, Role of Information technology in environment & human health, Environmental Ethics: Issues & possible solutions, Awareness of Environmental Legislation.	**02**
6.	**Social Issues and Environment:** From unsustainable to sustainable development, Urban problems related to energy, Water conservation: Rainwater harvesting, Watershed management, Resettlement & rehabilitation of people: Problems & concerns, Climate change, Global Warming, Ozone layer depletion, Acid Rain, Consumerism & waste Products, Concepts of Eco-labeled products, Eco-mark, Public Environmental education &awareness regarding environmental issues.	**02**

References –

Text Books:

1. D.K.Asthana, Meera Asthana,A Textbook of Environmental Studies, S.Chand Publication Revised edition, 2006.
2. S. Deswal& A. Deswal, Basic course in environmental Studies, Dhanpat Rai & Co ltd., Delhi, Second revised edition, 2009.

Reference Books:

1. Eldon D Enger,Bradley F. Smith, Environmental science – a study of inter-relationships Wm C Brown Publishers 1989
2. Francois Ramade Ecology of Natural resources,John wiley& Sons
3. Robert Leo Smith, Ecology and field biology, Harper Collins Publishers
4. Gilbert M.Masters,Introduction to Environmental Engineering & Science,Prentice Hall International Inc. Second Edition

K.E. Society'

Rajarambapu Institute of Technology, Sakharale

(An Autonomous Institute, affiliated to Shivaji University, Kolhapur)

Curriculum Structure and Evaluation

Implemented from 2018-19

Rev: *ETC Engg. Course Structure/RIT/02/2018-19*

Department: Electronics and Telecommunication Engineering

Class: S. Y. B. Tech **Semester:** III

Course Code	Course Title	Teaching scheme			Credits	Evaluation Scheme					
						Scheme	Theory Marks			Practical Marks	
		L	T	P			Max Marks	Min for Passing (%)		Max Marks	Min for Passing (%)
EC2012	Electronic Devices	3	--	--	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	
EC2032	Digital System Design	3	--	--	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
EC2052	Analog Communication	3	--	--	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
EC2072	Network Theory	3	--	--	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
SH2112	Engineering Mathematics III	3	1	--	4	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
EC2092	Comprehensive Exam I	--	--	--	1	ESE	100	50	-	-	-
EC2112	Electronic Devices Lab	--	--	2	1	ISE	-	-	-	50	50
						ESE	-	-	-	50	50
EC2132	Digital System Design Lab	--	--	2	1	ISE	-	-	-	50	50
						ESE	-	-	-	50	50
EC2152	Analog Communication Lab	--	--	2	1	ISE	-	-	-	50	50
						ESE	-	-		50	50
SH*	Open Elective Choice based Soft Skill Program-II	--	--	2	1	ISE	-	-	-	50	50
						ESE	-	-		50	50
Total		**15**	**01**	**08**	**21**						

Total Contact Hours/week : 24

Total Credits : 21

Comprehensive Exam Subjects : Electronic Devices, Digital System Design, Network Theory, Engineering Mathematics III , Analog Communication

ISE = In Semester Exam, MSE (UT1+UT2) UT-I = Unit Test-I, UT-Ii = Unit Test-II ESE = End Semester Exam

Open Elective II &III

Sr. No	Name of Course		Course Code
1	Choice based Soft Skill Program-II	Personal Effectiveness and Body Language	SH2592
2		Interpersonal Skills (Work Life Balance)	SH2612
3		Leadership and Public Speaking	SH2632
4		Innovation Tools and Method for Entrepreneurs	SH2692
5		German Language -Basic Level	SH2732
6		Japanese language -Basic Level	SH2712
7		German Language -Advanced Level	SH2642
8		Japanese language - Advanced Level	SH2622

Note:

1. A student has to complete any two courses out of six choices offered under Choice Based Soft Skills Programme. A course in each semester will be allocated without any repetition.

2. The students who have completed 'German Language Lab' or 'Japanese Language Lab' in F.Y.B.Tech should not give their choice for 'German Language – Basic Level' and 'Japanese Language – Basic Level'. Such students may give their choices for 'German Language – Advanced Level' and 'Japanese Language – Advanced Level' (batch sizes 40 each) in the SYBTech Sem-IV only.

3. The students who will select and will successfully complete 'German Language – Basic Level' and 'Japanese Language – Basic Level' in SYBTech Sem-III will by default (mandatorily) appear for Advance Levels of said courses in Semester-IV.

Department: Electronics and Telecommunication Engineering
Class: S. Y. B. Tech **Semester:** IV

Course Code	Course Title	Teaching scheme			Credits	Evaluation Scheme					
						Scheme	Theory Marks			Practical Marks	
		L	T	P			Max	Min for Passing (%)		Max	Min for Passing (%)
CE2262	Engineering Mechanics	2	--	--	2	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
EC2022	Analog Circuits	3	--	--	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
EC2042	Microcontrollers	3	--	--	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
EC2062	Digital Communication	3	--	--	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
EC2082	Signals and System	3	--	--	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
EC2102	Comprehensive Exam II	--	--	0	1	ESE	100	50	-	-	-
CE2282	Engineering Mechanics Lab	--	--	2	1	ISE	-	-	-	50	50
						ESE	-	-	-	50	50
EC2122	Analog Circuits Lab	--	--	2	1	ISE	-	-	-	50	50
						ESE	-	-	-	50	50
EC2142	Microcontrollers Lab	--	--	2	1	ISE	-	-	-	50	50
						ESE	-	-	-	50	50
EC2162	Digital Communication Lab	--	--	2	1	ISE	-	-	-	50	50
						ESE	-	-	-	50	50
SH*	Open Elective Choice based Soft Skill Program-III	--	--	2	1	ISE	-	-	-	50	50
						ESE	-	-	-	50	50
SH2172	Environmental Science	1*	--	--	1	ISE	50	40	40	-	-
						ESE	50	40			
SH2602	Environmental Science Project	--	--	2	1	ISE	-	-	-	100	50
	Total	**15**	**00**	**12**	**22**						

Total Contact Hours/week : 27
Total Credits : 22
Comprehensive Exam Subjects: Analog Circuits, Digital Communication, Signals & Systems, Microcontroller
ISE = In Semester Exam, MSE (UT1+UT2) UT-I = Unit Test-I, UT-II = Unit Test-II ESE = End Semester Exam
Note: 1. * Department should allot one extra lecture to Environment Science in time Table
2. Students are required to undergo industrial/field training of minimum 4 weeks in the vacation of semester IV, and its evaluation will be carried out in Semester V.

Open Elective II &III

Sr. No	Name of Course		Course Code
1	Choice base soft Skill Program-III	Personal Effectiveness and Body Language	SH2592
2		Interpersonal Skills (Work Life Balance)	SH2612
3		Leadership and Public Speaking	SH2632
4		Innovation Tools and Method for Entrepreneurs	SH2692
5		German Language -Basic Level	SH2732
6		Japanese language -Basic Level	SH2712
7		German Language -Advanced Level	SH2642
8		Japanese language - Advanced Level	SH2622

Note:

1. A student has to complete any two courses out of six choices offered under Choice Based Soft Skills Programme. A course in each semester will be allocated without any repetition.

2. The students who have completed 'German Language Lab' or 'Japanese Language Lab' in F.Y.B.Tech should not give their choice for 'German Language – Basic Level' and 'Japanese Language – Basic Level'. Such students may give their choices for 'German Language – Advanced Level' and 'Japanese Language – Advanced Level' (batch sizes 40 each) in the SY B.Tech Sem-IV only.

3. The students who will select and will successfully complete 'German Language – Basic Level' and 'Japanese Language – Basic Level' in SY BTech Sem-III will by default (mandatorily) appear for Advance Levels of said courses in Semester-IV.

Department: Electronics and Telecommunication Engineering
Class: T.Y. B.Tech
Semester: V

Course Code	Course Title	Teaching scheme			Credits	Evaluation Scheme					
						Scheme	Theory Marks			Practical Marks	
		L	T	P			Max	Min for Passing (%)		Max	Min for Passing (%)
EC3012	Digital Signal Processing	3	--	--	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
EC3032	Power Electronics	3	--	--	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
EC3052	Product Design	3	--	--	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
EC3072	Electromagnetic Waves & Antenna Theory	3	--	--	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
PE I*	Program Elective – I	3	--	--	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
EC3192	Comprehensive Exam III	--	--	--	1	ESE	100	50	-	-	-
EC3212	Digital Signal Processing Lab using MATLAB	--	--	2	1	ISE	-	-	-	50	50
						ESE	-	-	-	50	50
EC3232	Power Electronics Lab	--	--	2	1	ISE	-	-	-	50	50
						ESE	-	-	-	50	50
EC3252	Object Oriented Programming using C++ Lab	--	--	2	1	ISE	-	-	-	50	50
						ESE	-	-	-	50	50
EC3272	Antenna Lab	--	--	2	1	ISE	-	-	-	50	50
						ESE	-	-	-	50	50
SH3032	Aptitude Training I	2*	--	--	2	ISE	20	40	40	100	50
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
EC3292	Summer Internship (4 weeks)	--	--	--	2	ISE	-	-	-	100	50
SH3012	Mandatory Course(Indian Constitution/Essence of Indian Traditional Knowledge	--	--	--	Audit	ISE	100	50	50	-	-
Total		**17**	**00**	**08**	**24**						

Total Contact Hours/week : 25
Total Credits : 24
Comprehensive Exam Subjects : Electromagnetic Waves & Antenna Theory, Digital Signal Processing, CMOS VLSI Design

ISE = In Semester Exam, MSE (UT1+UT2) UT-I = Unit Test-I, UT-II = Unit Test-II , ESE = End Semester Exam
Note*: Department should allot one extra lecture to Aptitude Training-I in time Table.

PROGRAM ELECTIVE I			
Sl.No	**Course code**	**Domain**	**Course Name**
1	EC3092	Communication	Information Theory and Coding
2	EC3112	Embedded System	Mixed Mode Controller
3	EC3132	Signal Processing	Audio Video Engineering
4	EC3152	VLSI DVT	RTL Simulation and Synthesis with PLDs
5	EC3172	Industrial Automation	Control System

Department: Electronics and Telecommunication Engineering
Class: T.Y. B.Tech **Semester:** VI

Course Code	Course Title	Teaching scheme			Credits	Evaluation Scheme					
						Scheme	Theory Marks			Practical Marks	
		L	T	P			Max	Min for Passing (%)		Max	Min for Passing (%)
EC3022	CMOS VLSI Design	3	--	--	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
EC3042	Robotics	3	--	--	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
EC3062	Artificial Intelligence	3	--	--	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
PE II*	Program Elective – II	3	--	--	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
SH3022	Biology for Engineers	3	--	--	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
EC3182	Comprehensive Exam IV	--	--	--	1	ESE	100	50	-	-	-
EC3202	CMOS VLSI Design Lab	--	--	2	1	ISE	-	-	-	50	50
						ESE	-	-	-	50	50
EC3222	Python Programming Lab	--	--	2	1	ISE	-	-	-	50	50
						ESE	-	-	-	50	50
EC3242	Electronic Measurement Lab	--	--	2	1	ISE	-	-	-	50	50
						ESE	-	-	-	50	50
EC3262	Mini Project/Electronic Design workshop	--	--	2	1	ISE	-	-	-	50	50
						ESE	-	-	-	50	50
SH3052	Aptitude Training II	2*	--	--	2	ISE	20	40	40	100	50
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
Total		**17**	**00**	**08**	**22**						

Total Contact Hours/week : 25
Total Credits : 22
Comprehensive Exam Subjects : Power Electronics, Robotics, Electronic Measurement
ISE = In Semester Exam, MSE (UT1+UT2) UT-I = Unit Test-I, UT-II = Unit Test-II, ESE = End Semester Exam
Note*: Department should allot one extra lecture to Aptitude Training-II in time Table.

PROGRAM ELECTIVE II			
Sl.No	**Course code**	**Domain**	**Course Name**
1	EC3082	Communication	Scientific Computing
2	EC3102	Embedded System	MEMS
3	EC3122	Signal Processing	Wavelets
4	EC3142	VLSI DVT	Nano electronics
5	EC3162	Industrial Automation	Automotive Electronics

Department: Electronics and Telecommunication Engineering
Class: Final Year B. Tech
Semester: VII

Course Code	Course Title	Teaching scheme			Credits	Evaluation Scheme					
						Scheme	Theory Marks			Practical Marks	
		L	T	P			Max	Min for Passing (%)		Max	Min for Passing (%)
EC4012	Computer Network	3	--	--	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
EC4032	Internet of Things	3	--	--	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
PE III*	Program Elective-III	3	--	--	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
PE IV*	Program Elective - IV	3	--	--	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
OE-I*	Open Elective -IV	3	--	--	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
EC4252	Computer Networks and IoT Lab	--	--	2	1	ISE	-	-	-	50	50
						ESE	-	-	-	50	50
PEL III*	Program Elective – III Lab	--	--	2	1	ISE	-	-	-	50	50
						ESE	-	-	-	50	50
	Phase I	--	--	2	1	ISE	-	-		100	50
Total		**15**	**--**	**06**	**18**						

Total Contact Hours/week : 21
Total Credits : 18
ISE = In Semester Exam, MSE (UT1+UT2) UT-I = Unit Test-I, UT-II = Unit Test-II,ESE = End Semester Exam

Sr.No.	Choice Based Track	Phase –I Details	Course Code
1	Internship & Project (IIP)	Liberal Learning	IP4012
2	Undergraduate Research Experience (URE)	URE Synopsis	RE4012
3	Entrepreneurship Development (ED)	Prefeasibility Report	ED4012
4	Regular Capstone Project (CP)	CP Synopsis	EC4372

Note: Students should work on Phase I of Choice based track allotted to them.

PROGRAM ELECTIVE III			
Sl.No	**Course code**	**Domain**	**Course Name**
1	EC4052	Communication	Microwave Theory and Techniques
2	EC4072	Embedded System	Embedded Systems
3	EC4092	Signal Processing	Bio-Medical Electronics
4	EC4112	VLSI DVT	System Verilog
5	EC4132	Industrial Automation	Programmable Logic Control (PLC)
PROGRAM ELECTIVE III LAB			
1	EC4272	Communication	Microwave Theory and Techniques Lab
2	EC4292	Embedded System	Embedded Systems Lab
3	EC4312	Signal Processing	Bio-Medical Electronics Lab
4	EC4332	VLSI DVT	System Verilog Lab
5	EC4352	Industrial Automation	Programmable Logic Control (PLC)Lab
PROGRAM ELECTIVE IV			
	Course code	**Domain**	**Course Name**
1	EC4152	Communication	Mobile Communication and Networks
2	EC4172	Embedded System	Embedded Linux
3	EC4192	Signal Processing	Mixed Signal Design
4	EC4212	VLSI DVT	Low Power VLSI
5	EC4232	Industrial Automation	Advanced Power Electronics

OPEN ELECTIVE IV

Sr. No.	Branch	Course Code	Semester-VII Open Elective-IV Courses
1	Automobile	OE4012	Reliability Engineering
2	Automobile	OE4032	Product Design and Development
3	Automobile	OE4052	Design Thinking & Innovation
4	Civil	OE4072	Metro Systems and Engineering.
5	Civil	OE4092	Engineering Economics.
6	Civil	OE4112	Industrial Safety and Risk Management.
7	Computer	OE4132	Cyber Laws
8	Computer	OE4152	Database Administration
9	Electrical	OE4172	Optimization Techniques
10	Electrical	OE4192	Electrical Materials
11	E&TC	OE4212	Mechatronics
12	IT	OE4232	Open Source Software
13	Mechanical	OE4252	Aircraft Systems
14	Mechanical	OE4272	Supply Chain Management
15	Mechanical	OE4292	Non-conventional Energy Sources
16	Mechanical	OE4312	New Product Design and Development
17	MBA	OE4332	Marketing for Engineers

Track I: Industry Internship & Projects (IIP)

Department: Electronics and Telecommunication Engineering

Class: Final Year B. Tech **Semester:** VIII

Course Code	Course	Teaching Scheme			Credits	Evaluation Scheme				
		L	T	P		Scheme	Theory Marks		Practical Marks	
							Max	Min. for passing (%)	Max	Min. for passing (%)
IPEC4002	Online Course- I/Self learning course-I	-	-	-	3	ESE*	-	-	100	50
OE4362	Engineering Management& Economics (Online Course)	-	-	-	2	ESE*	-	-	100	50
IP4022	Internship & Project	-	-	-	11	ISE	-	-	50	50
						ESE	-	-	50	50
Total		-	-	-	**16**					

Total Contact Hours/week : --
Total Credits : 16

ISE = In Semester Evaluation ,ESE = End Semester Exam

Note: 1] Online or self-learning course may be:
A] Online Certification Course
B] Self-study course approved by Dean Academics
All courses should be related to Industry project.
2] Engineering Management is Compulsory online course.

*Indicates that, student needs to produce certificate of online or certification course at the time of ESE. If student fails to produce this certificate, he or she will not be eligible to give ESE of Online course.

3] Weekly Contact hours are not mentioned as student is expected to be in industry regularly for 20 weeks. However, student needs to report to Institute mentors as and when required.

Guidelines for subject code of Self-study or online course:

1] XX is abbreviation of the department. Abbreviations are given below.

Mechanical Engineering-ME
Automobile Engineering-AE
Electrical Engineering-EE
Civil Engineering-CE
Information Technology-IT
Computer Science and Engineering-CS
Electronics and Telecommunication Engineering-EC

2] YYY is individual subject number. Department has to decide this number. While giving the number YYY to the subject following care must be taken.

A] Number should start with 002
B] It should be even number.

Track II: Undergraduate Research Experience (URE)

Department: Electronics and Telecommunication Engineering
Class: Final Year B. Tech **Semester:** VIII

Course Code	Course	Teaching Scheme			Credits	Evaluation Scheme					
						Scheme	Theory Marks			Practical Marks	
		L	T	P			Max	Min. for passing (%)		Max	Min. for passing (%)
RE4022	Research Methodology	3	-	-	3	ISE	20	40	40	-	-
						UT-1	15				
						UT-2	15				
						ESE	50	40			
RE4062	Research Methodology Lab	-	-	2	1	ISE	-	-	-	100	50
OE4362	Engineering Management& Economics (Online Course)	-	-	-	2	ESE*	-	-	-	100	50
RE4042	Research Project	-	-	10	10	ISE	-	-	-	50	50
						ESE				50	50
Total		**03**	**-**	**12**	**16**						

Total Contact Hours/week : 15
Total Credits : 16
ISE = In Semester Evaluation, UT-I = Unit Test-I, UT-II = Unit Test-II ESE = End Semester Exam

Note:

1] Engineering Management is Compulsory online course.

*For Online Certification course, student needs to produce certificate of online course at the time of ESE. If student fails to produce this certificate, he or she will not be eligible to give ESE of Online course.
All courses should be related to research project

Track III: Entrepreneurship Development (ED)

Department: Electronics and Telecommunication Engineering
Class: Final Year B. Tech **Semester:** VIII

Course Code	Course	Teaching Scheme			Credits	Evaluation Scheme					
						Scheme	Theory Marks			Practical Marks	
		L	T	P			Max	Min. for passing (%)		Max	Min. for passing (%)
ED4102	Project Management	3	-	-	3	ISE	20	40	40	-	-
						UT-1	15				
						UT-2	15				
						ESE	50	40			
ED4042	Commercial Aspects of the Project	3	-	-	3	ISE	20	40	40	-	-
						UT-1	15				
						UT-2	15				
						ESE	50	40			
ED4062	Entrepreneurship Development Program (EDP)	-	-	-	1	ISE	-	-	-	100	50
ED4082	Entrepreneurship Development Project	-	-	9	9	ISE	-	-	-	50	50
						ESE				50	
Total		**06**	**-**	**09**	**16**	-	-	-	-	-	---

Total Contact Hours/week : 15
Total Credits : 16
ISE = In Semester Evaluation, UT-I = Unit Test-I, UT-II = Unit Test-II ESE = End Semester Exam

Track IV: Regular Capstone Project (CP)

Department: Electronics and Telecommunication Engineering
Class: Final Year B. Tech **Semester:** VIII

Course Code	Course	Teaching Scheme				Evaluation Scheme					
							Theory Marks			Practical Marks	
		L	T	P	Credits	Scheme	Max	Min. for passing (%)		Max.	Min. for passing (%)
PE V*	Program Elective-V	3	-	-	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
OE V*	Open Elective-V	3	-	-	3	ISE	20	40	40	-	-
						UT1	15			-	-
						UT2	15			-	-
						ESE	50	40		-	-
OE4362	Engineering Management & Economics (Online Course)	-	-	-	2	ESE*	-	-	-	100	50
EC4122	Capstone Project Phase II	-	-	8	8	ISE	-	-		50	50
						ESE	-	-		50	50
	TOTAL	**06**	**-**	**08**	**16**						

Total Contact Hours/week : 14
Total Credits : 16
ISE = In Semester Evaluation, UT-I = Unit Test-I, UT-II = Unit Test-II ESE = End Semester Exam

1] Engineering Management is Compulsory online course.

*For Online Certification course, student needs to produce certificate of online course at the time of ESE. If student fails to produce this certificate, he or she will not be eligible to give ESE of Online course

PROGRAM ELECTIVE V			
Sl.No	**Course code**	**Domain**	**Course Name**
1	EC4022	Communication	Satellite Communication
2	EC4042	Embedded System	Real Time Embedded Systems
3	EC4062	Signal Processing	Computer Architecture
4	EC4082	VLSI DVT	Mixed mode VLSI Design
5	EC4102	Industrial Automation	Electric Drives

OPEN ELECTIVE V

Sr. No.	Branch	Course Code	Semester-VIII Open Elective-V Courses
1	Automobile	OE4022	Renewable Energy Sources
2	Automobile	OE4042	Transport Management
3	Automobile	OE4062	Electric and Hybrid Electrical Vehicle
4	Civil	OE4082	Smart Cities and Sustainable Development.
5	Civil	OE4102	Material Management.
6	Computer	OE4122	Network Administration
7	Computer	OE4142	Information Technology Foundation Program
8	Electrical	OE4162	Finance Management
9	Electrical	OE4182	Electrical Installations and Maintenance
10	E&TC	OE4202	Image Processing
11	IT	OE4222	Information Technology and Business Management
12	Mechanical	OE4242	Computational Fluid Dynamics
13	Mechanical	OE4262	Entrepreneurship Development
14	Mechanical	OE4282	Hybrid Vehicles
15	Mechanical	OE4302	Maintenance Management
16	Mechanical	OE4322	Reverse Engineering and Benchmarking
17	MBA	OE4342	Finance for Engineers

B.Tech Honors

Semester	Course codes	B.Tech Honors
IV	EC4142	Electronics Enclosures and Thermal Issues
V	EC4162	Programming Data Structure & Algorithm in Python
V	EC4182	Android App development
VI	EC4202	Industrial Automation & Control
VI	EC4222	Deep learning for Visual Computing/ Introduction to Soft computing
VII	EC4242	Remote Sensing & Digital image Processing of Satellite data
VII	EC4262	Architecture of IC
VIII	EC4282	Cryptography and Network Security

B.Tech Minor

Semester	Course codes	B.Tech Minor
IV	EC4302	Analog Circuit/Basis Electronics
V	EC4322	Digital Circuits
V	EC4342	OP-AMP Practical Application
VI	EC4362	Microprocessors and Microcontrollers
VI	EC4382	Control Systems
VII	EC4402	Internet of Things
VII	EC4422	Image Processing
VIII	EC4424	Embedded System Design

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Curriculum Structure and Evaluation Scheme

With effective from 2018-22 [2018-22 & 2019-23 Batch]

Department of Mechanical Engineering

Class: S. Y. B. Tech **Semester:** III

Course Code	Course	Teaching Scheme				Evaluation Scheme					
							Theory (Marks)			Practical (Marks)	
		L	T	P	Credits	Scheme	Max	Min. for passing(%)		Max.	Min. for passing(%)
ME2012	Material Science & Metallurgy	3	-	-	3	ISE	20	40	40	----	----
						UT1	15			----	----
						UT2	15			----	---
						ESE	50	40		----	----
ME2032	Engineering Thermodynamics	3	-	-	3	ISE	20	40	40	----	----
						UT1	15			----	----
						UT2	15			----	----
						ESE	50	40		----	----
ME2052	Engineering Mechanics	3	-	-	3	ISE	20	40	40	----	----
						UT1	15			----	----
						UT2	15			----	----
						ESE	50	40		----	----
ME2072	Fluid Mechanics and Fluid Machines	3	-	-	3	ISE	20	40	40	----	----
						UT1	15			----	----
						UT2	15			----	----
						ESE	50	40		----	----
ME2092	Manufacturing Processes and Machine Tools	3	-	-	3	ISE	20	40	40	----	----
						UT1	15			----	----
						UT2	15			---	----
						ESE	50	40		----	----
ME2112	Electrical Technology	2	-	-	2	ISE	20	40	40	----	----
						UT1	15			----	----
						UT2	15			----	----
						ESE	50	40		----	----
SH2172	Environmental Science	1*	-	-	1	ISE	50	40	40	----	----
						ESE	50	40		----	----
ME2512	Engineering Mechanics Lab	-	-	2	1	ISE	----	----		100	50
ME2532	Thermal Engineering Lab-I	-	-	2	1	ISE	----	----		50	50
						ESE	----	----		50	50
ME2552	Material Science & Metallurgy Lab	-	-	2	1	ISE	----	----		100	50
ME2572	Workshop Practice –I	-	-	2	1	ISE	----	----		100	50
ME2592	Comprehensive Exam-I	-	-	-	1	ESE	---	---		100	50
SH2602	Environmental Project	-	-	2	1	ISE	---	----		100	50
	Open Elective- II Choice Based Soft Skill Program-I	-	-	2	1	ISE	-	-	-	100	50
	TOTAL	**18**	-	**12**	**25**						

ISE = In Semester Evaluation, UT1 = Unit Test-I, UT2 = Unit Test-II ESE = End Semester Examination

Total Contact Hours/week : 30

Total Credits : 25

Note*: One extra lecture to be allotted to Environment Science in time Table.

Comprehension Exam Courses: Material Science, Engineering Thermodynamics, Engineering Mechanics, Fluid Mechanics and Fluid Machines, Manufacturing Processes and Machine Tools

Sr. No.	Subject Name		Course Code
1.	Choice Based Soft Skill Program-I & II	Personal Effectiveness & Body Language	SH2592
2.		Interpersonal Skills (Work life Balance)	SH2612
3.		Leadership & Public Speaking	SH2632
4.		Innovation Tools and Methods for Entrepreneurs	SH2692
5.		German Language – Basic Level	SH2732
6.		Japanese Language – Basic Level	SH2712

Note:

1. A student has to complete any two courses out of six choices offered under Choice Based Soft Skills Programme. A course in each semester will be allocated without any repetition.
2. The students who have completed 'German Language Lab' or 'Japanese Language Lab' in F.Y. B. Tech should not give their choice for 'German Language – Basic Level' and 'Japanese Language – Basic Level'. Such students may give their choices for 'German Language – Advanced Level' and 'Japanese Language – Advanced Level' (batch sizes 40 each) in the S.Y. B. Tech Sem-IV only.
3. The students who will select and will successfully complete 'German Language – Basic Level' and 'Japanese Language – Basic Level' in S.Y. B. Tech Sem-III will by default (mandatorily) appear for Advance Levels of said courses in Semester-IV.

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Curriculum Structure and Evaluation Scheme

With effective from 2018-22 [2018-22 & 2019-23 Batch]

Department of Mechanical Engineering

Department: Mechanical Engineering

Class: S. Y. B. Tech **Semester:** IV

Course Code	Course	Teaching Scheme				Evaluation Scheme					
		L	T	P	Credits	Scheme	Theory (Marks) Max	Theory (Marks) Min. for passing (%)		Practical (Marks) Max	Practical (Marks) Min. for passing (%)
SH2062	Engineering Mathematics –III	3	1	-	4	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
ME2022	Strength of Material	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
ME2042	Applied Thermodynamics	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			--	---
						UT2	15			---	---
						ESE	50	40		---	---
ME2062	Manufacturing Engineering	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			--	---
						ESE	50	40		---	---
ME2082	Kinematics of Machines	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
ME2102	Computer Programming C++	2	-	-	2	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
ME2522	Machine Drawing Lab	-	-	2	1	ISE	---	----		50	50
						ESE	---	----		50	50
ME2542	Kinematics of Machines Lab	-	-	2	1	ISE	---	----		100	50
ME2562	Computer Programming C++ Lab	-	-	2	1	ISE	---	----		50	50
						ESE	----	----		50	50
ME2582	Workshop Practice – II	-	-	2	1	ISE	---	----		50	50
						ESE	----	----		50	50
ME2602	Comprehensive Exam-II	-	-	-	1	ESE	----	----		100	50
	Open Elective- III Choice Based Soft Skill Program-II	-	-	2	1	ISE	-	-	--	100	50
	TOTAL	**17**	**1**	**10**	**24**						

ISE = In Semester Evaluation, UT1 = Unit Test-I, UT2 = Unit Test-II ESE = End Semester Examination

Total Contact Hours/week : 28

Total Credits : 24

Comprehension Exam Courses : Strength of Material, Applied Thermodynamics, Engineering Mathematics –III, Manufacturing Engineering, Kinematics of Machines

Note: Students are required to undergo industrial / field training of minimum four weeks in the vacation of Semester-IV and its evaluation will be carried out in the Semester-V

Sr. No.	Subject Name		Course Code
1.	Choice Based Soft Skill Program-I & II	Personal Effectiveness & Body Language	**SH2592**
2.		Interpersonal Skills (Work life Balance)	**SH2612**
3.		Leadership & Public Speaking	**SH2632**
4.		Innovation Tools and Methods for Entrepreneurs	**SH2692**
5.		German Language – Advanced Level	**SH2642**
6.		Japanese Language – Advanced Level	**SH2622**

Note:

1. A student has to complete any two courses out of six choices offered under Choice Based Soft Skills Programme. A course in each semester will be allocated without any repetition.
2. The students who have completed 'German Language Lab' or 'Japanese Language Lab' in F.Y. B.Tech should not give their choice for 'German Language – Basic Level' and 'Japanese Language – Basic Level'. Such students may give their choices for 'German Language – Advanced Level' and 'Japanese Language – Advanced Level' (batch sizes 40 each) in the S.Y. B. Tech. Sem-IV only.
3. The students who will select and will successfully complete 'German Language – Basic Level' and 'Japanese Language – Basic Level' in S.Y. B.Tech Sem-III will by default (mandatorily) appear for Advance Levels of said courses in Semester-IV.

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Curriculum Structure and Evaluation Scheme

With effective from 2018-22 [2018-22 & 2019-23 Batch]

Department of Mechanical Engineering

Department: Mechanical Engineering

Class: T. Y. B. Tech **Semester: V**

Course Code	Course	Teaching Scheme				Evaluation Scheme					
		L	T	P	Credits	Scheme	Theory (Marks) Max	Theory (Marks) Min. for passing (%)		Practical (Marks) Max	Practical (Marks) Min. for passing(%)
ME3012	Dynamics of Machines	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
ME3032	Design of Machine Elements	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
ME3052	Metrology & Control Engineering	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
ME3072	Heat Transfer	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
	Program Elective-I	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
ME3512	Workshop Practice – III	-	-	2	1	ISE	---	---		50	50
						ESE	---	---		50	50
ME3532	Dynamics of Machinery Lab	-	-	2	1	ISE	---	---		50	50
						ESE	---	---		50	50
ME3552	Metrology & Measurement Lab	-	-	2	1	ISE	---	---		100	50
ME3572	Thermal Engineering Lab-II	-	-	2	1	ISE	---	---		100	50
ME3592	CAD-Modelling	-	-	2	1	ISE	---	---		100	50
ME3612	Comprehensive Exam-III	-	-	-	1	ESE	----	---		100	50
SH3032	Aptitude Training I	2*	-	-	2	ISE	20	40	40	---	----
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
ME3632	Summer Internship	-	-	-	2	ISE	---	---	---	100	50
SH301	Indian Constitution	2	-	-	Audit	ISE	100	50	(P/N)		
	TOTAL	**19**	-	**10**	**25**						

ISE = In Semester Evaluation, UT1 = Unit Test-I, UT2 = Unit Test-II ESE = End Semester Examination

Total Contact Hours/week : **29**

Total Credits : **25**

Note*: One extra lecture to be allotted to Aptitude Training-I in time Table.

Comprehensive exam Courses: Dynamics of Machines, Design of Machine Elements, Metrology & Control Engineering, Heat Transfer

Program Elective-I

Sr. No.	Course Code	Domain	Course
1.	ME3312	Design	Mechanics of Composite Material
2.	ME3332		Textile Technology
3.	ME3352	Thermal	Energy Conversion and Management
4.	ME3372		Nuclear Power Engineering
5.	ME3392	Manufacturing	World Class Manufacturing
6.	ME3412		Non Traditional Machining Processes
7.	ME3432		Advanced Casting & Joining Processes
8.	ME3452		Industrial Organization and Management

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Curriculum Structure and Evaluation Scheme

With effective from 2018-22 [2018-22 & 2019-23 Batch]

Department of Mechanical Engineering

Class: T. Y. B. Tech **Semester:** VI

Course Code	Course	Teaching Scheme				Evaluation Scheme					
							Theory (Marks)			Practical (Marks)	
		L	T	P	Credits	Scheme	Max	Min. for passing(%)		Max	Min. for passing(%)
ME3022	Machine Design	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
ME3042	Engines and Refrigeration	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
	Program Elective-II	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
	Open Elective-IV	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
SH302	**Biology for Engineers**	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
ME3522	Thermal Engineering Lab-III	-	-	2	1	ISE	---	---		50	50
						ESE	---	---		50	50
ME3542	Software Training-I	-	-	2	1	ISE	---	---		100	50
ME3562	Comprehensive exam-IV	-	-	-	1	ESE	---	---		100	50
ME3582	Capstone Project phase-I	-	-	2	2	ISE	---	---		100	50
SH3042	Aptitude training- II	2*	-	-	2	ISE	20	40	40	---	----
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
	TOTAL	**17**	**-**	**6**	**22**						

ISE = In Semester Evaluation, UT1 = Unit Test-I, UT2 = Unit Test-II ESE = End Semester Examination

Total Contact Hours/week : 23
Total Credits : 22

Note*: One extra lecture to be allotted to Aptitude Training-II in time Table.

Comprehensive exam Courses: Machine Design, Engines and Refrigeration

Program Elective - II

Sr. No.	Course Code	Discipline	Course
1.	ME3622	Design	Solid Mechanics
2.	ME3642		Biomechanics
3.	ME3662		Tribology
4.	ME3682		Fracture Mechanics
5.	ME3702		Finite Element Method
6.	ME3722	Thermal	Alternative fuels
7.	ME3742		Steam Engineering
8.	ME3762		Gas turbines & Jet Propulsion
9.	ME3782		Power Plant engineering
10.	ME3802	Manufacturing	Additive Manufacturing
11.	ME3822		Computer Integrated Manufacturing System
12.	ME3842		Industrial Hydraulics and Pneumatics
13.	ME3862		Operation Research
14.	ME3882		Total Productive Maintenance

Open Elective-IV

Sr. No.	Branch	Course Code	Open Elective-IV Courses
1.	Automobile	OE3022	Reliability Engineering
2.	Automobile	OE3042	Renewable Energy Sources
3.	Civil	OE3062	Environmental Impact Assessment
4.	Civil	OE3082	Material Management.
5.	Computer	OE3102	Network Administration
6.	Computer	OE3122	Information Technology Foundation Program
7.	E&TC	OE3142	Mechatronics
8.	Electrical	OE3162	Engineering Materials
9.	Electrical	OE318	Industrial Drives
10.	CS&IT	OE320	Artificial Intelligence
11.	CS&IT	OE322	Cyber Forensics
12.	MBA	OE3242	Marketing for Engineers
13.	Mechanical	OE3262	Aircraft Systems
14.	Mechanical	OE3282	Supply Chain Management
15.	Mechanical	OE330	New Product Design and Development
16.	Mechanical	OE3322	Entrepreneurship Development
17.	Mechanical	OE334	Research Methodology

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Curriculum Structure and Evaluation Scheme
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***Rev: SH** Course Structure/RIT/01/2019-20*

Department: Sciences and Humanities
Class: F. Y. B. Tech **Semester:** I
Group A: Mechanical, Civil and Mechanical Engineering Automobile

Course Code	Course	Teaching Scheme				Evaluation Scheme				
		L	T	P	Credits	Scheme	Theory (Marks %) Max.	Theory (Marks %) Min. for Passing	Practical (Marks %) Max.	Practical (Marks %) Min. for Passing
SH 131	Engineering Physics	3	-	-	3	ISE	20	40	---	---
						UT1	15		---	---
						UT2	15		---	---
						ESE	50	40	---	---
SH 1053	Engineering Mathematics I	3	1	-	4	ISE	20	40	---	---
						UT1	15		---	---
						UT2	15		---	---
						ESE	50	40	---	---
SH 1132	Engineering Graphics	1	-	-	1	ISE	20	40	---	---
						UT1	15		---	---
						UT2	15		---	---
						ESE	50	40	---	---
	Open Elective - I	2	-	-	2	ISE	20	40	---	---
						UT1	15		---	---
						UT2	15		---	---
						ESE	50	40	---	---
SH 187	Engineering Physics Lab	-	-	2	1	ISE	---	---	100	50
SH 1552	Engineering Graphics Lab	-	-	4	2	ISE	---	---	100	50
	Open Elective - I Lab	-	-	2	1	ISE	---	---	100	50
SH 1831/ SH 1582/ SH 1601	English Proficiency Lab I/ Japanese Language Lab Level I /German Language Lab Level I	-	-	4	2	ISE	---	---	60	50
						ESE	---	---	40	
SH 185	Engineering Practice Lab I			2	1	ISE	---	---	100	50
SH 189	Engineering Exploration and Design Project	-	-	4	2	ISE	---	---	80	50
						ESE	---	---	20	
Total:		**9**	**1**	**18**	**19**					
Total Contact Hours:		**28**								

Total Contact Hours/week: 28 Total Credits: 19
ISE = In Semester Exam, MSE (UT1+UT2) UT-I = Unit Test-I, UT-II = Unit Test-II
ESE = End Semester Exam

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Curriculum Structure and Evaluation Scheme
(To be implemented from **2019-20)**
***Rev: SH** Course Structure/RIT/01/2019-20*

Department: Sciences and Humanities
Class: F. Y. B. Tech **Semester:** II
Group A: Mechanical, Civil and Mechanical Engineering Automobile

Course Code	Course	Teaching Scheme				Evaluation Scheme					
							Theory (Marks %)			Practical (Marks %)	
		L	T	P	Credits	Scheme	Max.	Min. for Passing		Max.	Min. for Passing
SH 1033	Engineering Chemistry	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
SH 1023	Engineering Mathematics II	3	1	-	4	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
SH 1291	Electrical Engineering	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
SH 133	Programming for Problem Solving	2	-	-	2	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
SH 1532	Engineering Chemistry Lab	-	-	(2)	(1)	ISE	---	---		100	50
SH 1791	Electrical Engineering Lab	-	-	2	1	ISE	---	---		100	50
SH 191	Programming for Problem Solving Lab	-	-	4	2	ISE	---	---		100	50
SH 162/ SH 1661 /SH168	English Proficiency Lab. II/ Japanese Language Lab Level II/ German Language Lab Level II	-	-	4	2	ISE	---	---		60	50
						ESE	---	---		40	
SH 164	Engineering Practice Lab II	-	-	2	1	ISE	---	---		100	50
Total:		**11**	**1**	**14**	**19**						
Total Contact Hours:		**26**									

Total Contact Hours/week: 26 Total Credits: 19

ISE = In Semester Exam, MSE (UT1+UT2) UT-I = Unit Test-I, UT-II = Unit Test-II ESE = End Semester Exam

K.E. Society's
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Curriculum Structure and Evaluation Scheme
(To be implemented from **2019-20)**

***Rev: SH** Course Structure/RIT/01/2019-20*

Department: Sciences and Humanities
Class: F. Y. B. Tech **Semester:** I
Group B: Electronics & Telecommunication, Electrical, Computer Science and Engineering & Computer Science and Information Technology

Course Code	Course	Teaching Scheme				Evaluation Scheme					
							Theory (Marks %)			Practical (Marks %)	
		L	T	P	Credits	Scheme	Max.	Min. for Passing		Max.	Min. for Passing
SH 1033	Engineering Chemistry	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
SH 1053	Engineering Mathematics I	3	1	-	4	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
SH 1291	Electrical Engineering	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
SH 133	Programming for Problem Solving	2	-	-	2	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
SH 1532	Engineering Chemistry Lab	-	-	2	1	ISE	---	---		100	50
SH 1791	Electrical Engineering Lab	-	-	2	1	ISE	---	---		100	50
SH 191	Programming for Problem Solving Lab	-	-	4	2	ISE	---	---		100	50
SH 1831/ SH 1582/ SH 1601	English Proficiency Lab I/ Japanese Language Lab Level I/ German Language Lab Level I	-	-	4	2	ISE	---	---		60	50
						ESE	---	---		40	
SH 185	Engineering Practice Lab I	-	-	2	1	ISE	---	---		100	50
Total:		**11**	**1**	**14**	**19**						
Total Contact Hours:		**26**									

Total Contact Hours/week: 26 Total Credits: 19

ISE = In Semester Exam, MSE (UT1+UT2) UT-I = Unit Test-I, UT-II = Unit Test-II ESE = End Semester Exam

K.E. Society's
Rajarambapu Institute of Technology, Sakharale
(An Autonomous Institute, affiliated to Shivaji University, Kolhapur)
Curriculum Structure and Evaluation Scheme
(To be implemented from **2019-20)**

***Rev: SH** Course Structure/RIT/01/2019-20*

Department: Sciences and Humanities
Class: F. Y. B. Tech **Semester:** II
Group B: Electronics & Telecommunication, Electrical, Computer Science and Engineering & Computer Science and Information Technology

Course Code	Course	Teaching Scheme				Evaluation Scheme					
		L	T	P	Credits	Scheme	Theory (Marks %)			Practical (Marks %)	
							Max.	Min. for Passing		Max.	Min. for Passing
SH 106	Engineering Physics	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15				
						ESE	50	40		---	---
SH 1023	Engineering Mathematics II	3	1	-	4	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
SH 1132	Engineering Graphics	1	-	-	1	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
	Open Elective- I	2	-	-	2	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		--	--
SH 1512	Engineering Physics Lab	-	-	2	1	ISE	---	---		100	50
SH 1552	Engineering Graphics Lab	-	-	4	2	ISE	---	---		100	50
	Open Elective- I Lab	-	-	2	1	ISE	---	---		100	50
SH 162/ SH 1661 /SH168	English Proficiency Lab. II/ Japanese Language Lab Level II /German Language Lab Level II	-	-	4	2	ISE	---	---		60	50
						ESE	---	---		40	
SH 164	Engineering Practice Lab II	-	-	2	1	ISE	---	---		100	50
SH 189	Engineering Exploration and Design Project	-	-	4	2	ISE	---	---		80	50
						ESE	---	---		20	
Total:		**9**	**1**	**18**	**19**						
Total Contact Hours:		**28**									

Total Contact Hours/week : 28 Total Credits: 19

ISE = In Semester Exam, MSE (UT1+UT2) UT-I = Unit Test-I, UT-II = Unit Test-II ESE = End Semester Exam

Open Elective- I

Sr. No.	Course Code	Department	Course Title
1.	SE1011	Electronics and telecommunications Engineering	Basics of Electronics Engineering
2.	SE1511		Basics of Electronics Engineering Lab
3.	SE1051	Civil Engineering	Basics of Civil Engineering
4.	SE1551		Basics of Civil Engineering Lab
5.	SE1071	Mechanical Engineering	Thermodynamics
6.	SE1571		Thermodynamics Lab
7.	SE1091		Engineering Materials
8.	SE1591		Engineering Materials Lab
9.	SE1131	Civil Engineering	Green Technology
10.	SE1631		Green Technology Lab
11.	SE143	Mechanical Engineering Automobile & Mechanical Engineering	Basics of Mechanical Engineering
12.	SE165		Basics of Mechanical Engineering Lab
13.	SE145	Mechanical Engineering	Creativity, Design Thinking and Entrepreneurial Mindset
14.	SE167		Creativity, Design Thinking and Entrepreneurial Mindset Lab

Humanities & Social Science: Choice Based Languages

Sr. No.	Course Code	Department	Course Title
1.	SH1831	Sciences and Humanities Department	English proficiency Lab I
2.	SH162		English proficiency Lab II
3.	SH1582		Japanese Language Lab Level I
4.	SH1661		Japanese Language Lab Level II
5.	SH1601		German Language Lab Level I
6.	SH168		German Language Lab Level II